AARHUS
UNIVERSITY
BUSINESS AND SOCIAL SCIENCES
AU HERNING

2025

MSc in Technology-based Business Development (civilingeniør)

at Department of Business Development and Technology, Herning

Torben Tambo

MSc in Technology-based Business Development

- Started 2007 as a natural succession to the technical or business-engineering bachelor programs

- Approx. 250 active students
- More than 1000 gradutates since 2009
- Company collaboration with more than 100 companies engaged with students

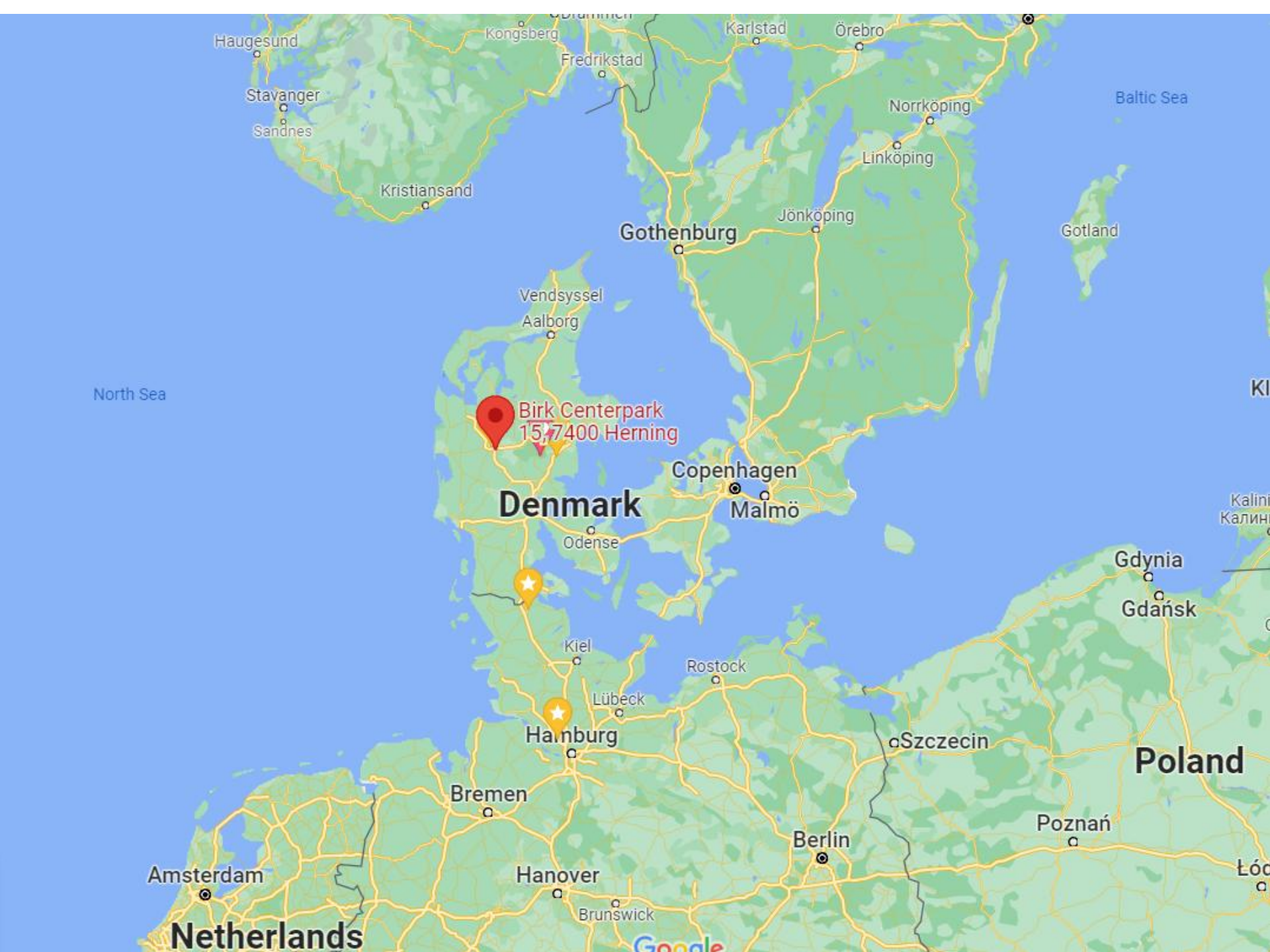
- Enrollment both February and September

- Admission for very most having a B.Sc. in engineering, technical sciences, mixed programs of engineering/tech and business

- 100% English taught and requiring English test to be admitted

Admission requirements

- English test equalling TOEFL >= 83
- Bachelor in engineering
- Alternatively a degree comparable to
- Bachelor in software, digital technologies
- Bachelor in production / technical supply chain / maritime technology management
- Bachelor in physical/mechanical systems
- Bachelor in (sustainable) product development
- Who are rejected: arts, economy, business, pharmacy, marketing and more
- Ask if you are in doubt… me or kandidat@au.dk


Haugesund
Kongsberg
Karlstad
Örebro
Fredrikstad
Stavanger
Sandnes
Baltic Sea
Norrköping
Linköping
Kristiansand
Jönköping
Gothenburg
Gotland
Vendsyssel
Aalborg
North Sea
Birk Centerpark
15, 7400 Herning
Copenhagen
Denmark
Malmö
Odense
Gdynia
Gdańsk
Kiel
Rostock
Lübeck
Hamburg
Szczecin
Poland
Bremen
Poznań
Berlin
Amsterdam
Hanover
Brunswick
Netherlands
Google

Introduction

- Engineering management – cross cutting classical and neo-classical engineering disciplines
- International outlook and relating to international environments and communities
- ”Company collaboration is our DNA - thinking enterprise and industry is our flesh and bone”

What's in it for me?

- Bachelor neutral with all directions of engineering and technology
- Using scientific methodologies … contrary to professional
- Taste of technology – sense of business
- Modelling approaches
- Master level business (model) creation
- Career development – emphasis on role in companies
- Other students from comparable programmes (BDE, GMM, GBE, Wirtschafsingenieur, Industrial Engineers)
  Other students from less comparable programmes (mechanical, ICT, health, construction, electrical)
  Interdisciplinarity make us happy

What do we expect?

- Engagement
- Curiousity
- Putting the classroom and the possible company activities as the two main places of learning
- Building on top of your bachelors (and possible professional experience)
- Knowledge ”hunger”
- Comfortable thinking about critique and critical positions
- Thinking industrial contexts and professional development as essential agendas
- Preparedness related to this: What do I want to do? Or… what would I like to request of learning and support?

Or a different story in bits…

- Redefine or re-tell yourself (from bachelors)
- Explore DK – open economy, most industry globally networked
- Learning on learning – self-paced – get acqauinted with ever shifting company focus' on technologies, infrastructures, rules, markets, hypes, leads, misleads –> be smarter
- Career "booster"
- Thinking of companies as learning platforms
- Workspace cultures as determining factors

Soft disciplines – core and non-core plus all the technology you can manage

Engineering management - core
Approvable as electives with no restrictions
Supply Chain Management
Logistics
Technology life cycle management
Project and programme Management
Portfolio management of projects or products
Information and physical security
Information systems management
Business process optimization
Quality management
Construction management
Product development
Product design
Data management
Business Intelligence
Enterprise Architecture
Management of change
Design for safety and reliability

Business administration – non-core
Approvable within 10 ECTS "classic business administration" limit
Financing and investment
Economics
Auditing
Communication and language
Business strategy
Marketing and sales
Organisation
Law and intellectual property rights
Culture
Entrepreneurship
Human Resource Management
Training and learning
Sociology, political science
CSR
Negotiation

Graduation statistics

Year	Number
2009	12
2010	13
2011	13
2012	38
2013	37
2014	66
2015	67
2016	53
2017	61
2018	69
2019	85
2020	90
2021	89
2022	96
2023	84
2024	80
2025	63
	1016

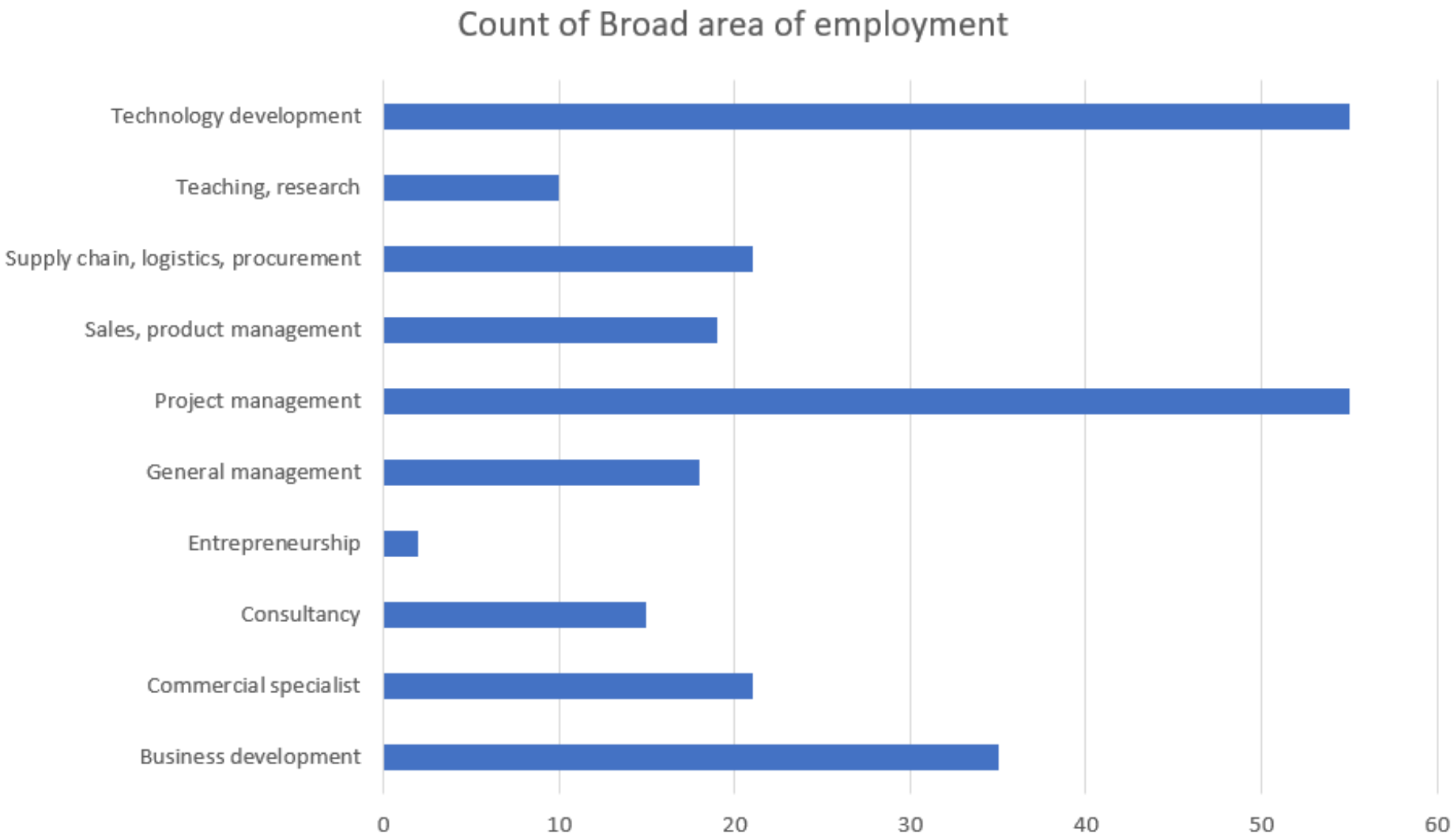
Other statistical (fun) facts

- 90% are employed in the private sector
- 69% are employed in large companies (250+ empl)
- 40% are employed in the company of the studies
- 27% of the graduates have been women
- 36% of the graduates were not Danish
- 29 are pursuing or have completed a PhD degree
- 70% work or live in Central Region – 81% work in Jutland/Fyn
- Foreign graduates top countries: RO, DE, LT, PL, BG, CN, MX

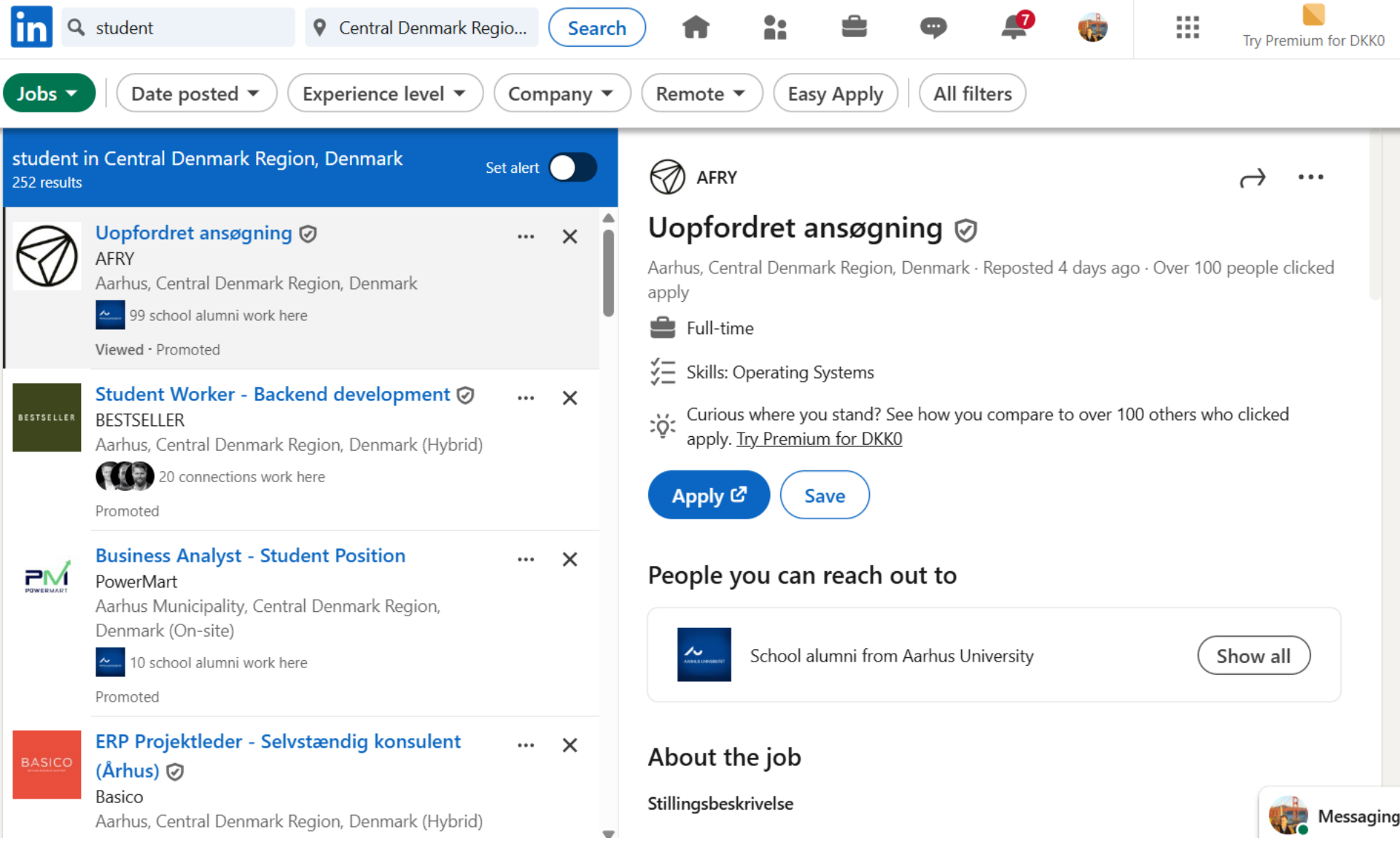
Job characteristics

Industries	
Manufacturing	40
"Other"	31
Knowledge services	17
Trading	13

- Management but not so much ”people management” more suppliers, supply chain, software, infrastructures, operational systems, projects, compliance, resources, safety/security
- Problemsolving between business and technology with slightly more effort on technology
- Connectors, relation oriented, communicators, enablers


Count of Broad area of employment
Technology development
Teaching, research
Supply chain, logistics, procurement
Sales, product management
Project management
General management
Entrepreneurship
Consultancy
Commercial specialist
Business development
0
10
20
30
40
50
60

The company issue....


student
Central Denmark Regio...
Search
7
Try Premium for DKK0
Jobs
Date posted
Experience level
Company
Remote
Easy Apply
All filters
student in Central Denmark Region, Denmark
252 results
Set alert
Uopfordret ansøgning
AFRY
Aarhus, Central Denmark Region, Denmark
99 school alumni work here
Viewed · Promoted
Student Worker - Backend development
BESTSELLER
Aarhus, Central Denmark Region, Denmark (Hybrid)
20 connections work here
Promoted
Business Analyst - Student Position
PowerMart
Aarhus Municipality, Central Denmark Region, Denmark (On-site)
10 school alumni work here
Promoted
ERP Projektleder - Selvstændig konsulent (Århus)
Basico
Aarhus, Central Denmark Region, Denmark (Hybrid)
AFRY
Uopfordret ansøgning
Aarhus, Central Denmark Region, Denmark · Reposted 4 days ago · Over 100 people clicked apply
Full-time
Skills: Operating Systems
Curious where you stand? See how you compare to over 100 others who clicked apply. Try Premium for DKK0
Apply
Save
People you can reach out to
School alumni from Aarhus University
Show all
About the job
Stillingsbeskrivelse
Messaging

CV

› https://english.ida.dk/job-searching

› Clear message
”What are my skills?”
”What would I like to do?”
a.k.a.
”What can I do for you?”

Personlige oplysninger

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/in/peterlarsen
Github
github.com/peterlarsen
Stackoverflow
/users/peterlarsen

Færdigheder

React, Angular, Vue.js, Svelte
Responsivt webdesign
Git
CSS-præprocessorer (SASS, LESS)
Evne til problemløsning
Kommunikationsfærdigheder

Sprog

Dansk (C2)
Svensk (C1)

Peter Larsen

Front-end udvikler

Profil

Som front-end udvikler med mere end 5 års erfaring ligger min passion i at skabe intuitive React/NextJS-hjemmesider og -applikationer. Når jeg gør det, sørger jeg altid for, at hjemmesiden fungerer på både PC og mobil. Jeg implementerer også de nyeste teknikker som f.eks. lazy-loading af billeder og caching-strategier for at optimere indlæsningstiden for hjemmesider og applikationer. Med et skarpt øje for detaljer, stræber jeg efter at udvikle både funktionelle og brugervenlige applikationer, og jeg har altid slutbrugerens og kundens behov i tankerne.

Erhvervserfaring

Front-end udvikler *apr 2021 –*
Cooders

- Udviklede og implementerede hjemmesider og webapplikationer med HTML, CSS, JavaScript, React, NextJs i kombination med Tailwind og SASS.
- Arbejdede tæt sammen med UX/UI-designere for yderligere at optimere brugervenligheden af hjemmesider.
- Øgede PageSpeed Insight-score fra 20 til 95 på desktop ved at optimere koden og implementere strategier for lazy-loading og caching.
- Ledede et projekt, der skulle 'refaktorere' et stort projekt, så det levede op til moderne webstandarder.

Front-end udvikler *jun 2015 – apr 2*
SoftChip

- Udviklede en stor virksomheds hjemmeside og kundedashboards ved hjælp af React.
- Bidrog til at løse tekniske problemer og yde teknisk support til kunder.
- Udførte optimeringer som lazy loading, code splitting og server-side rendering (SSR) med Next.js for at forbedre indlæsningstiderne med 30 %.

Winter 2026 start

- 3 subject lines

- Technology and operations management (TOM)
- Designing the Digital Enterprise (DDE)
- Energy Systems Management (ESM)

- **2 hour workshop will be held for each lines during intro week**
- **Selection period during first week in a digital self-service platform**

Schedule 2025 – 2 years – Summer start

Semester	Foundational courses		Subject courses			
			Technology and operations management		Energy systems management	Managing the digital enterprise
1	Management of Technology	TS1 (1)	Advanced Operations Manage-ment	People and Technology in Organisations	Energy Supply and Production	Digital Front-End Solutions
2	Technological Business Model Innovation	TS2 (1)	Optimisation of Engineering Processes Using Numerical Approaches		Energy Demand and Consumption	Digital Back-End Solutions
3	Electives and the subject courses. Go abroad.					
4	Master's Thesis (1)					

(1) Must be agreed to follow the subject choise

Schedule 2025 – Working professional – Spring start

Semester	Course	Course	ECTS	ECTS
1	Technological Business-Model Innovation	Subject course	20	20
2	Management of Technology		10	30
3		Technology Specialisation 1	10	40
4	Subject course	Technology Specialisation 2	20	60
5	Electives			90
6				
7	Master's Thesis			120
8				

(1) Must be agreed to follow the subject choise

The subject lines - courses

	Technology and Operations Management	Energy Systems Design	Managing the Digital Enterprise
Autumn	Advanced Operations Managment	Energy Supply and Production	Digital Front-End Solutions
	People and Technology in Organisations		
Spring	Optimisation of Engineering Processes Using Numerical Approaches	Energy Demand and Consumption	Digital Back-End Solutions

The new subject lines

Technology and Operations Management	Energy Systems Design	Managing the Digital Enterprise
How technology, in broad terms, interact and influence our operational systems – also influenced by development and introduction of new technology. Thinking systematic improvement	360° viewing of energy as the key critical ressource in sustainable transformation. Findings ways for improvement and development on both supply and demand sides	Back-end – roughly our infrastructures, broadly Front-end – our applications Technical (technological) depth of disciplines of system architects, digital transformation agents – on practice driven matters. With a business development perspective.

The new subject lines – for who

Technology and Operations Management	Energy Systems Design	Managing the Digital Enterprise
Physical product developers Operations, manufacturing, supply chain specialists Open and general agenda	Interest in sustainable transition and the industries existing from energy technologies. Both on the technology provider side, and on the operational organisations such as energy producers, energy brokers, planners	With background in software or digital passion looking at the existing or coming digital enterprise. Being the solution lead. Not being ”business-only”, ”organisation-only”, but profoundness in the many technologies affecting.

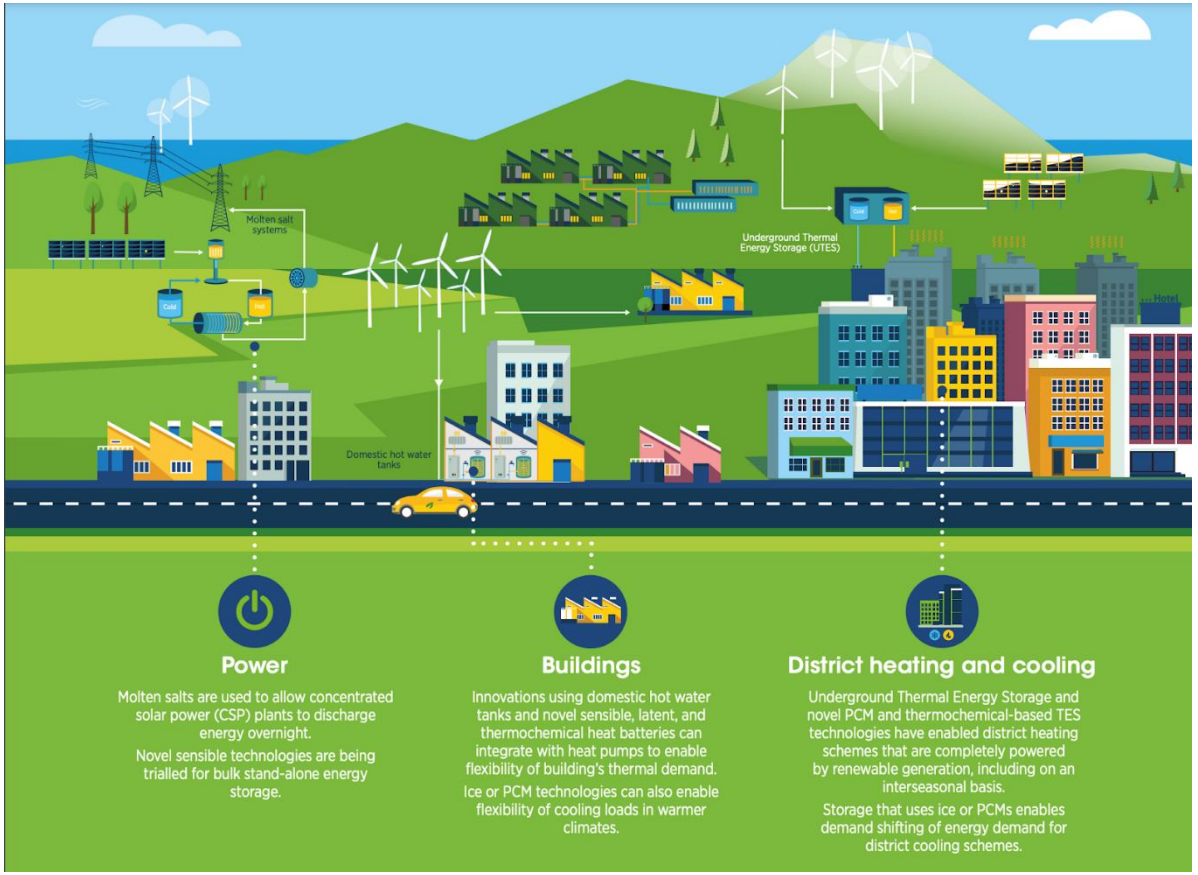
Technology and Operations Management

- Thinking engineering across physical, virtual and service production
- Being change agents
- Emphasize operational validity and value creation
- Understand and manage the change portfolio
- Navigate life-cycles
- ”Actual sustainability”

Pictures
Novopen production – thank to NNE
JYSK Distribution Uldum – thank to JYSK

Energy Systems Design

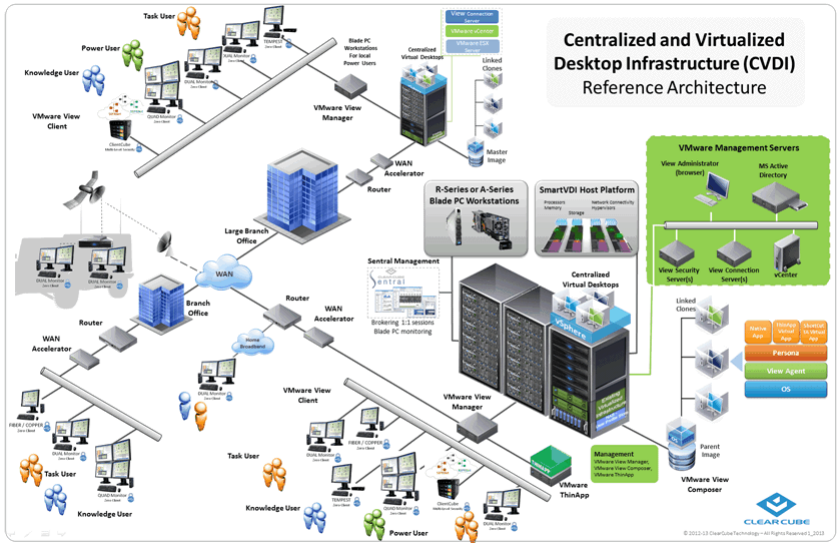
Driven by matters of
Technologies
Science
Innovation
Operations
Finance
Brokering
Adoptation
Politics
Sociology
Consumer

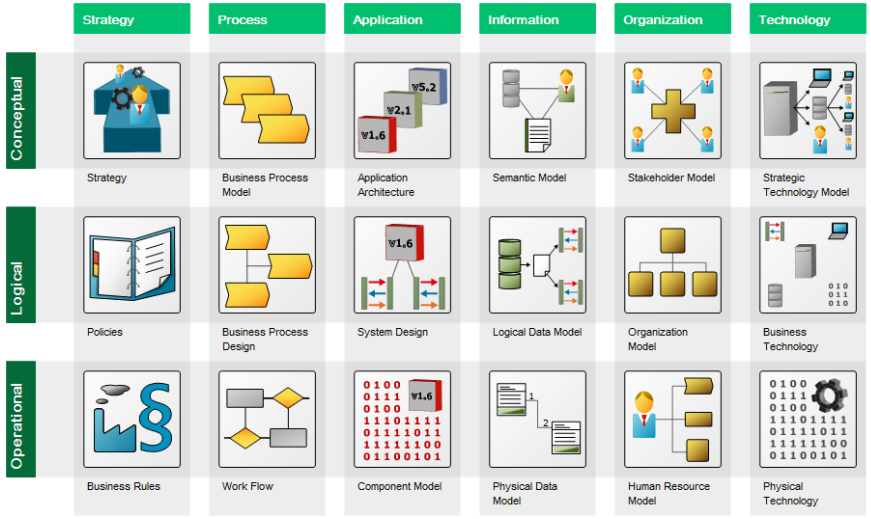


Managing the Digital Enterprise

2025

- Understand business needs and translate into digital solutions
- Understand complexity of digital
- Exploit existing portfolio
- Design solutions
- Centralised or distributed
- Networked
- Computing centric
- Hands-on, lab works
- Getting behind the ”promises of digitalisation” and act





Problem-based Learning: Technology Specialisations 1 & 2

- Problem-based learning. At best from companies
- Potentially closely connected to research activities
- Projects can be closely related and ”progressive” or independent
- A wide concept of technology. From mechanical engineering to supply chain management to digital technologies
- Matching the subject lines – energy, digital, tech&operations

Examples of TS1/2

- Verification of warehouse sizing in food production company
- Sizing of IT server infrastructure in Siemens Gamesa
- Selection processes of ERP system in Bestseller
- Effort assessment in goods receiving QA in Terma
- Warehouse picking optimisation and use of pick-to-voice
- Bill-of-materials / flow of goods in electronics manufacturing for Vestas
- Security in contáiner emptying
- Decentralised IT storage architecture
- Factory-acceptance-test, new factory in US for Skanderborg company
- Business intelligence use in freight forwarding company
- FMEA in product development in Siemens Gamesa

From TS1 to TS2 to 3.sem. to thesis to ...

- Stairways
- Progression
- Exercising
- Following your own agenda
- Getting in to the company

Management of Technology

- Technology forecasting, technology roadmapping
- Portfolio management
- Enterprise Architecture
- Engineering Change Management
- Sources of knowledge, innovation systems
- Philosophies of development: Project organisations, DevOps, Agile
- The importance of project management and quality management (compliance) on technological development
- Technological development in networks
- Data foundations of engineering

Technology-based Business Model Innovation

- State-of-the-art business model innovation methodology and typologies
- Physical, digital and virtual business models
- Incremental, modular, architectural and radical business model innovation
- “To-be” and “as-is” business model innovation
- “Business model relation axioms” and technologies for mapping network-based business models and relations
- Business model ecosystems
- Business model innovation leadership, management and implementation
- Multi business model innovation and technologies
- Open, agile and dynamic business model innovation

Examples of learning in MOT & TBMI

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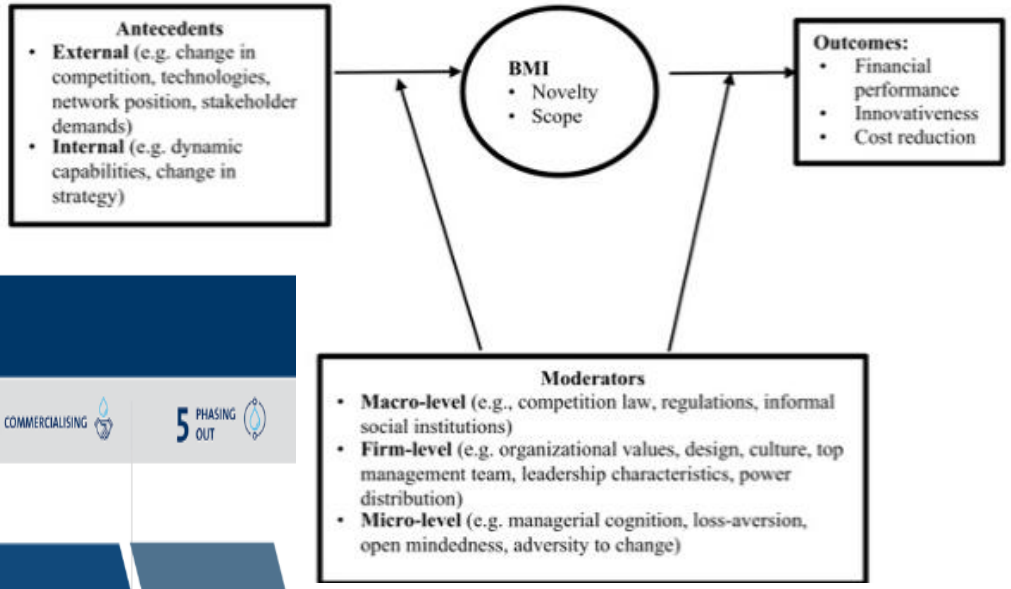
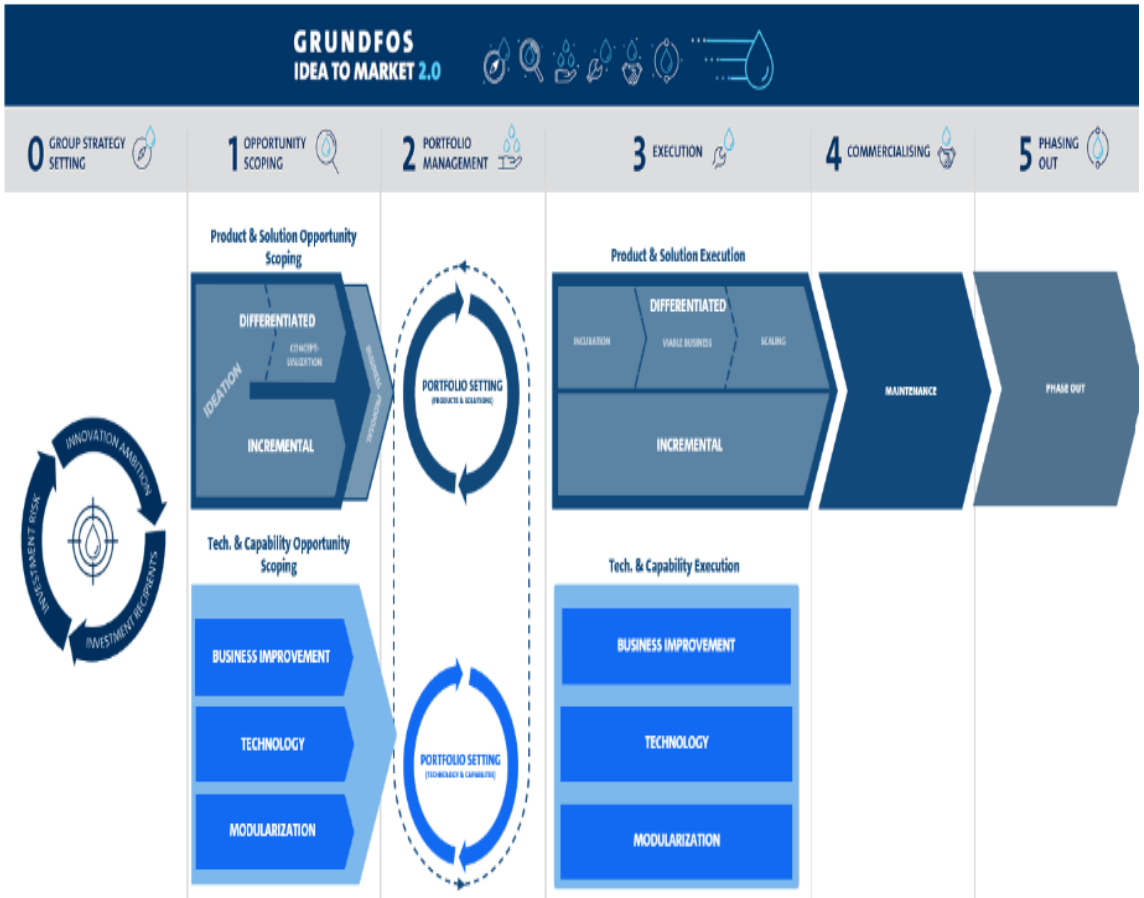
Antecedents, Moderators & Outcome





Electives for entrepreneurs and ”internship”

- 10 / 5 ECTS
- ”Business Development Project”
- ”Technology Focused Project”
- Document in a report form whatever you otherwise are to document.

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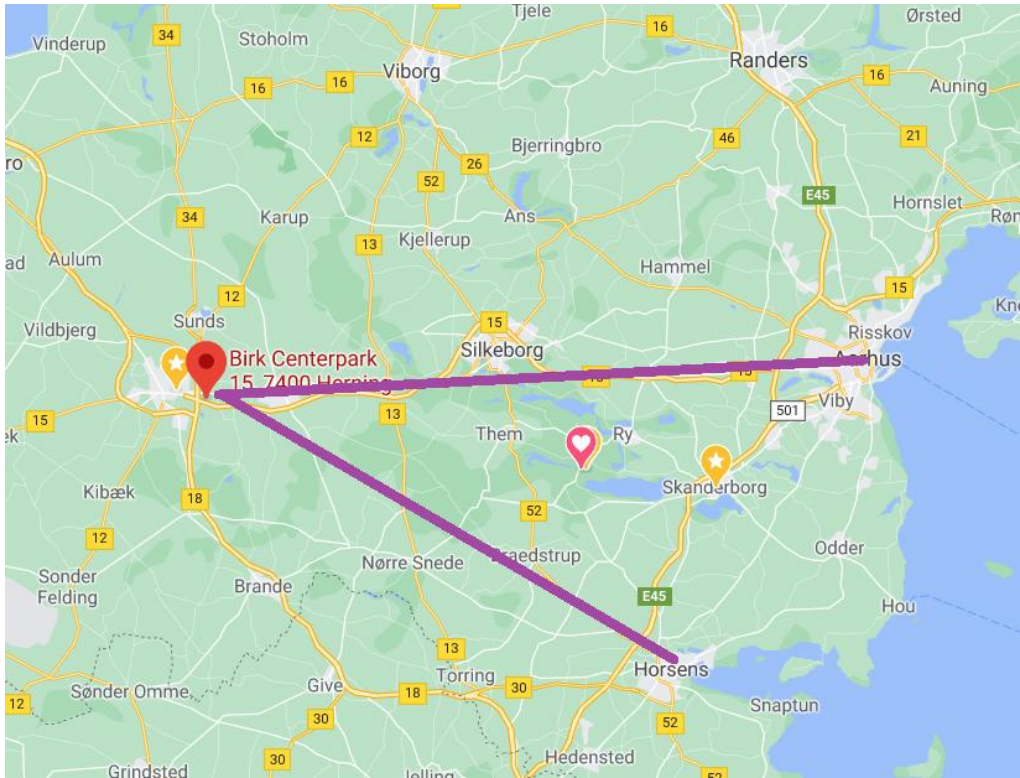
Campus

- Place for teaching
- Laboratories for use
- Meet the staff
- People commute a lot
- Relocate to Herning: many affordable housing opportunities
  .. Or stay where you want



Concerns?

- ”Is it too theoretical?”
  Not more than any other MSc education. We are doing a lot to ensure relevance to real-life engineering.
- Tired of school
- ”What if I can’t find a company?”
- Is this something for me?

What now?

- http://kandidat.au.dk/optagelse/ansoegning/

  ACCEPT☺

- PREPARE – budget, housing, finance, outreach, purpose, dreams
- Ask questions. Book meetings with me or colleagues.
- Find a company!!

Week 35 & 36 2025 as example

#	W		8	9	10	11	12	13	14	15
0	35	Mo 25.08			International students' arrival					
0	35	Tu 26.08		Welcome	Welcome	Welcome	TOM Workshop	TOM Workshop	TS1 intro	TS1 intro
0	35	We 27.08	TS1 Methods	TS1 Methods	ESM Workshop	ESM Workshop	TS1 Methods	TS1 Methods	TS1 Intro & Meet supervisors	Meet supervisors
0	35	Th 28.08	TS1 Methods	TS1 Methods	DDE Workshop	DDE Workshop	TS1 Methods	TS1 Methods	Meet supervisors	Meet supervisors
0	35	Fr 29.08		Campus activities – embracing campus life						
1	36	Mo 01.09		MOT	MOT	MOT	MOT	MOT	MOT	MOT
1	36	Tu 02.09	AOM	AOM	AOM	AOM	PTO	PTO	PTO	PTO
1	36	Tu 02.09		DEM	DEM	DEM	DEM	DEM	DEM	DEM
1	36	Tu 02.09		ESP	ESP	ESP	ESP	ESP	ESP	ESP
1	36	We 03.09		TS1 Methods	TS1 Methods	TS1 Methods	TS1 Methods	TS1 Methods	TS1 Methods	